PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF:	DAVID A. PALSULICH *ET AL.*	EXAMINER:	MAHMOUD DAHIMENE
APPLICATION NO.:	10/636,021	ART UNIT:	1792
FILED:	AUGUST 6, 2003	CONF. NO:	1017
FOR:	**MICROFEATURE WORKPIECE PROCESSING FOR E.G., SEMICONDUCTOR WAFER ANALYSIS**		

Reply Brief Under 37 C.F.R. § 41.41

MS Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This Reply responds to the Examiner's Answer mailed June 23, 2008. The Examiner's Answer does not contain any new grounds of rejection, but rather the Examiner's Answer merely repeats the rejections set forth in the preceding Office Action mailed October 17, 2006. In the Examiner's Answer, the Examiner attempted to address the basis for overcoming the rejections established by the appellant in the Appeal Brief filed March 30, 2008. However, the Examiner's rationale is flawed as explained in more detail below.

As the appellant explained in the Appeal Brief, the rejection of at least the independent claims over the combination of Tomita and McNeilly is improper because modifying Tomita's beaker to have McNeilly's polymeric material would likely render Tomita's process unsatisfactory for its intended purpose. (Appeal Brief, March 30, 2008, page 11). In particular, Tomita teaches that the etching temperature should be as high as possible. If McNeilly's polymeric material (e.g., Teflon® AF and FEP) is used to form Tomita's beaker, Tomita's etching temperature could not be as high as possible because the service temperature of McNeilly's polymeric material restricts operating temperatures with Tomita's beaker. *Id.* In response, the Examiner pointed out that Teflon AF has a higher upper use temperature than Teflon FEP, and that Tomita does not teach the temperature has to be 290°C to 350°C but also 213°C for a solution containing fluoric acid added phosphoric acid.

The Section 103 rejection of these claims is incorrect because the Examiner's rationale does not comport with Section 103 or the M.P.E.P. The issue in this case is not whether a particular material selection could be technically possible for Tomita's process, but rather, the issue is whether one skilled in the art would modify Tomita's beaker with McNeilly's polymeric material based on all the knowledge of the one skilled in the art and sound engineering practice to come up with the arrangement in the claims. The appellant agrees that Teflon AF has a higher upper use temperature than Teflon FEP. DuPont's website indicates that Teflon AF2400 has an upper use temperature of 300°C. However, when designing Tomita's beaker, commonly accepted engineering practice dictates that the material of the beaker should be selected so that the beaker could be used in all of Tomita's applications. As a result, even if Tomita teaches one application that operates at a lower temperature, one skilled in the art still would not modify Tomita's beaker to be made from Teflon AF2400 because Tomita teaches an operating temperature of 290°C to 350°C with sulfuric acid that still exceeds the upper use temperature of Teflon AF2400. Modifying Tomita's beaker to be made from Teflon AF, as proposed by the Examiner, would accordingly render the beaker useless for one of Tomita's primary application. In industry, such a modification would not even be considered by one skilled in the art, and thus such a purported modification cannot be the basis for a proper rejection under Section 103.

The Examiner's statements in the Examiner's Answer shows that the Examiner has failed to consider the references as a whole in accordance with 35 U.S.C. §103 and ignored explicit teachings of Tomita. Tomita explicitly states that "to remove metallic impurities sufficiently, it is desirable that the substrate temperature should be as high as possible, provided that it is lower than the boiling point of the chemical liquid." (Tomita, 7:32-36, emphasis added). Tomita then provides several examples in which the selected operating temperatures are just below a boiling point of an etchant liquid. Thus, as a whole, Tomita clearly directs one skilled in the art to select an operating temperature that is as high as possible based on the boiling point of the etchant liquid, which includes sulfuric acid, fluoric acid added sulfuric acid, and fluoric acid added phosphoric acid. By only focusing on one particular embodiment of Tomita's teachings, the Examiner has failed to consider Tomita's teachings as a whole, and erroneously believed that one skilled in the art would modify Tomita's quartz beaker for practicing only one disclosed embodiment in Tomita.

Moreover, the Examiner's assertion that one skilled in the art would operate Tomita's process below the maximum temperature is contrary to rational thinking because one skilled in the art, with sound judgment, would not choose an operating condition that reduces the effectiveness of the process. The Examiner stated that "Tomita teaches other embodiments where the temperature does not need to be as high as the appellant's selected temperatures." (Examiner's Answer, June 23, 2008, page 18). To support this statement, the Examiner used Tomita's Figure 3 to show that the copper residual rate increased from about 3% to about 13% when the operating temperature is lowered from 300°C to 200°C. However, Tomita's Figure 3 clearly shows that the cleaning effectiveness of Tomita's process decreased about 4 fold when the operating temperature is lowered from 300°C to 200°C. Accordingly, one skilled in the art would not choose to operate Tomita's process at 200°C with significantly reduced effectiveness and efficiency from operating at 300°C.

Further, the Examiner's assertion that one skilled in the art would choose an operating temperature of Tomita's process based on McNeilly's material of construction is contrary to Tomita's teachings and common sense. The Examiner stated "one of ordinary skill in the art would be motivated to select a less preferred embodiment, namely a temperature lower than the maximum temperature suggested by McNeilly [Tomita?], in order to prevent a rapid deterioration of the apparatus, when the maximum temperature will result in harming the apparatus." (Examiner's Answer, June 23, 2008, page 19). The Examiner's rationale is contrary to Tomita's teachings that the operating temperature should be "as high as possible." In fact, the solution proposed by the Examiner is analogous to shrinking a person's feet when his shoes are too small. The rational solution would be bigger shoes. As discussed above, Tomita clearly teaches a process that is most effective at high temperatures for removing metallic impurities in a semiconductor substrate. As a result, the operating conditions for achieving the advantages of Tomita's process should dictate the material selection for its apparatus, not the other way around.

Accordingly, the appellant respectfully requests that the Board reverse the rejection of the pending claims.

Respectfully submitted,

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